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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,025	04/25/2001	Chen-Wei Chiu	UMACH.003A	7226

20995 7590 05/21/2003

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EXAMINER

GEYER, SCOTT B

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/843,025

Applicant(s)

CHIU ET AL.

Examiner

Scott B. Geyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,9,11-15 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 24 is/are rejected.
- 7) ☒ Claim(s) 2,5,8,9,11-15 and 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,6,12. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1, 2, 4, 5, 8, 9, 11-15 and 21-24 in Paper No. 14 is acknowledged.

Information Disclosure Statement

2. The references cited within the information disclosure statements, entered as paper nos. 3, 6 and 12, have been considered. Applicant should note that all of the references cited on IDS paper no. 3 were duplicated on IDS paper no. 6.

Drawings

3. The formal drawings as submitted on March 22, 2002 by the applicant are acceptable.

Specification

4. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 24 recites the limitation "'the first portion and

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the second portion" in line 1. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination and application of art, the examiner will assume this limitation to mean 'an electrical conduit'.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClelland et al. (6,201,629 B1).

8A. As to ***claim 1***, McClelland et al. teach a method of manufacturing a module for intercepting a light beam, as shown by figures 21A through 21G. Figure 21A depicts a polished silicon wafer (i.e. a single crystal silicon wafer) 71 (see also column 18, lines 32 et seq.), which has first (upper) and second (lower) surfaces. Metal is patterned onto the first surface to form the pads which provide the electrical contacts and anchors (i.e. reflector support) (see column 17, lines 9-13). The frame and the reflector are next defined by etching the lower surface (second surface) of the substrate (column 17, line 14 et seq.). The support structure is then separated from the frame by etching from the front surface (see column 71, lines 39 et seq.). McClelland et al. also teach that the reflector (i.e. mirror) is movable in relation to the surrounding substrate (see column 5, lines 27 et seq.). Although McClelland et al. teach formation of a conduction coil (electrical conduit) on the surface of the reflector, McClelland et al. do not specifically

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teach formation of this conduction coil after etching the lower surface (second surface) and before formation of the reflector support by etching the reflector support layer from the first substrate surface. However, McClelland et al. do teach layering of metal on the first surface (see column 17, lines 23-38). Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill to modify the method of McClelland et al. by forming the conduction coil (electrical conduit) before establishing the gap between the main substrate and the reflector support so as to confine the metal layering, the photo-resists needed for patterning the metal and the etching chemicals to the top surface of the micro-machined device.

8B. As to **claim 4**, McClelland et al. teach alignment marks on the front and back surface of the substrate (column 17, lines 1-8).

8C. As to **claim 24**, McClelland et al. teach an electrical conduit with a spiral configuration (see figure 8C).

Allowable Subject Matter

9. Claims 2, 5, 11 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form *including all of the limitations of the base claim and any intervening claims* (emphasis added).

9A. As to claim 2, the prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention, regarding the first substrate surface having a crystallographic orientation of {110}.

9B. As to claim 5, the prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention,

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regarding forming a reflector support layer on the first substrate surface wherein a silicon dioxide layer is formed on the first substrate surface and a substratum layer is formed on the silicon dioxide layer. Claims 8 and 9 are further dependent upon claim 5.

9C. As to claim 11, the prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention, regarding formation of a support frame and at least one reflector wherein, combined with other claimed limitations, etching the substrate from the first region of the second substrate surface to the reflector support layer, thereby forming sidewalls of the support frame, and at least one reflective surface of the reflector. Claims 12, 13, 14 and 15 are further dependent upon claim 11.

9D. As to claim 21, the prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention, regarding formation of an electrical conduit wherein, combined with other claimed limitations, a first metal layer is disposed and etched into a pattern, an insulating film is layered above the first metal layer, at least one via hole is formed within the insulating layer, and a second metal layer is formed and patterned on the insulating layer, whereby contact is made through the at least one via hole. Claims 22 and 23 are further dependent upon claim 21.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703)

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306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: scott.geyer@uspto.gov

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

**SCOTT GEYER
PATENT EXAMINER**

SBG
May 15, 2003


**KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**